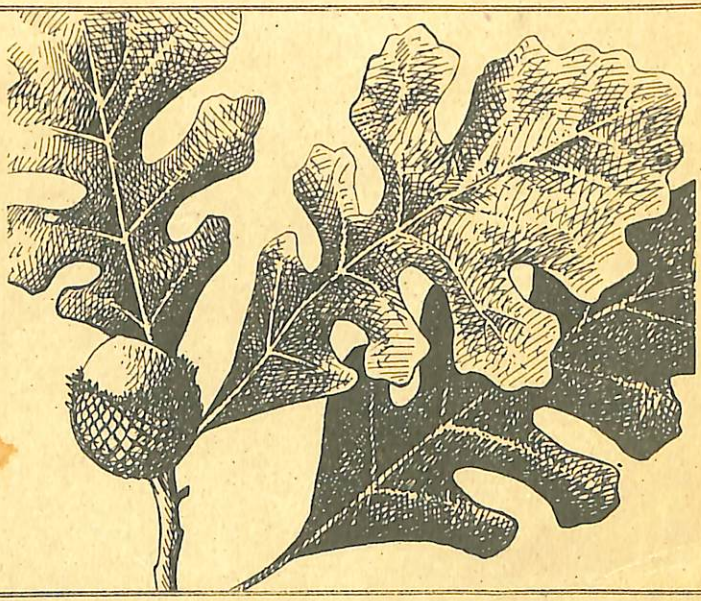
# goll woods nature trail



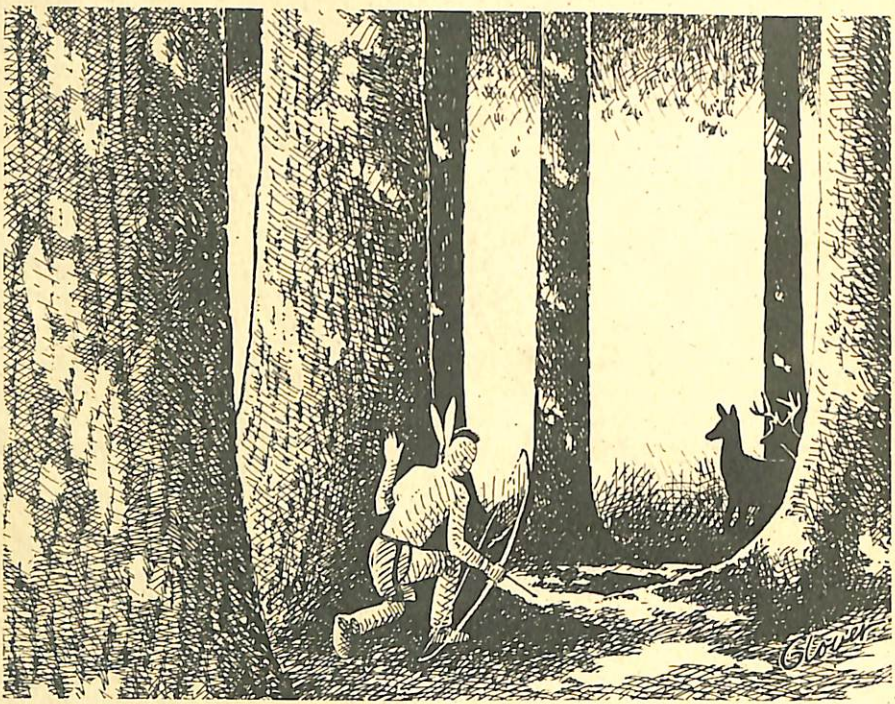
goll woods state forest

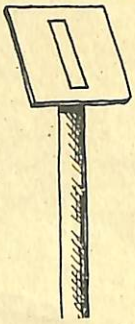
ohio department of natural resources

ULTON
OUNTY

# goll woods nature trail

Welcome to Goll Woods. By pointing out some of the many interesting features along Goll Woods Nature Trail, this booklet will serve as your nature interpreter. Simply match the numbers on the posts with the corresponding numbered paragraphs in this booklet (see fold-out back cover). Here, as in all other State lands, plants must be left undisturbed.

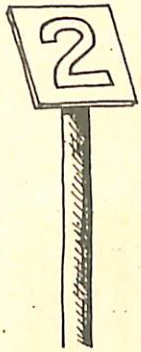




## of ages gone by

This 80-acre woods is an exceptionally fine example of the primeval forest that was characteristic of northwestern Ohio's Black Swamp. The Black Swamp was a poorly drained plain which during early post-glacial times was the lake bed for predecessors to modern Lake Erie. (See page 32) Only since 1916, when lumber was in great demand for the war effort of World War I, have any trees been removed from Goll Woods, and then only on a limited basis. Many of the magnificent trees seen along this trail were quite large even at the time of the Pilgrims' landing at Plymouth Rock.

Although this remnant of centuries gone by has been markedly affected by extensive drainage and by the cutting of trees, especially giant American Elm which have succumbed to Dutch Elm disease, Goll Woods remains one of the most outstanding, essentially virgin woodlands in the State of Ohio.

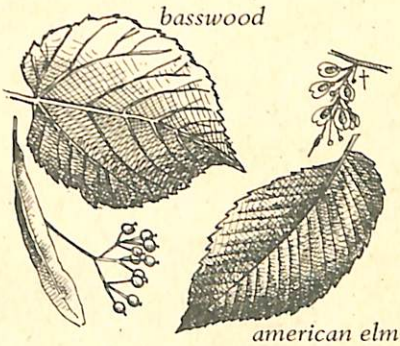


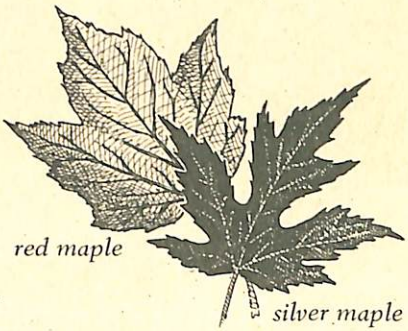

# forest transition

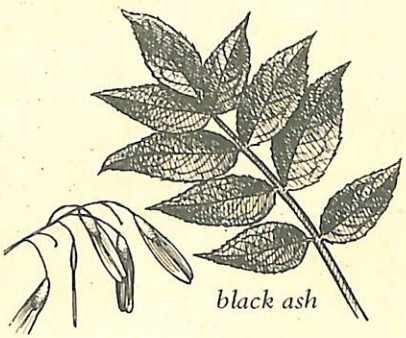
Different types of plants have different requirements for growth. Each thrives under a particular set of topographic, climatic, soil, light, and moisture conditions. The result is the establishment of plant communities or types characterized by distinct vegetative forms.

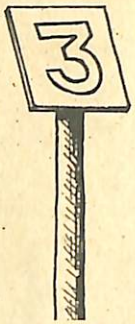
A forest may be classified according to the largest and most abundant species of trees which exercise the greatest measure of control over the composition of that vegetative community. Within Goll Woods, moisture conditions, soil types and available sunlight vary to such an extent that at least three basic forest types are represented. These are the (1) Elm-Ash-Maple swamp forest, (2) Mixed Mesophytic, and (3) Beech-Maple forest associations.

Where we are now standing may have been swamp forest at one time. However, in more recent years this section has become better drained, enabling new species of trees to grow where once only swamp forest trees could survive. Notice that Bur Oak, Basswood, Tuliptree, White Oak, Walnut, Chinquapin Oak, Sugar Maple, Shagbark Hickory, and White Ash thrive in this situation. All are present in about the same numbers. Each seems to be of relatively equal importance. This forest area represents a special transitional community between a wet site covered by Elm and Ash and a well-drained site in which conditions favor American Beech and Sugar Maple. We refer to this as a Mixed Mesophytic forest association.



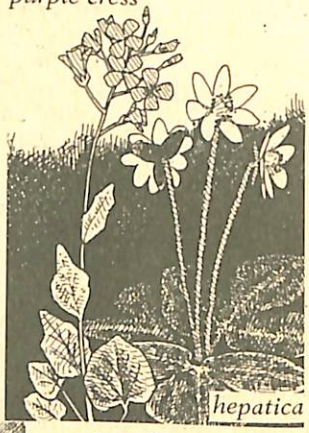



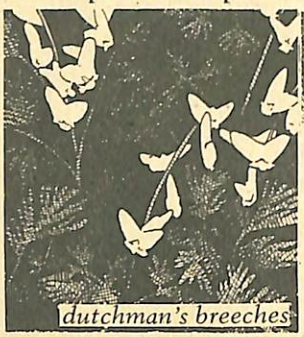


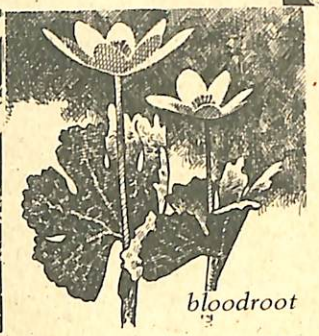

# let them live in your eye---- not die in your hand

Beneath this stately forest canopy we find an abundance of wildflowers. Spring is a particularly good season to enjoy them, for they are then at their peak. It is remarkable that these delicate spring wildflowers have adapted to sprouting forth, flowering and going to seed all in just a few short weeks of early spring. It all happens before the trees above come into full leaf and deprive the forest floor of the precious sunlight the flowers need to carry on these functions. Once the trees are in leaf, only the most shade tolerant plants can survive beneath them. Using the checklist on pages 21-25, see how many wildflowers you can identify along this trail. Please do not pick or trample them.

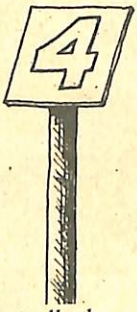

*purple cress*

*hepatica*


*dutchman's breeches*


*bloodroot*

*bur oak*




## bur oak

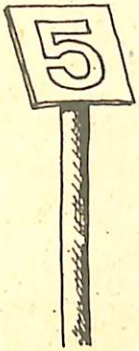
One of the most outstanding features of this woodlot is the abundance of giant-sized Bur Oaks. Notice how their thick, deeply furrowed bark and stiff gnarled limbs present a rather distinctive appearance. Although often associated with the tall grass prairies of the midwest, the Bur Oak is surprisingly adaptable and may be found on dry uplands as well as on moist, well drained bottom-lands in the East. How do you account for the fact that the trunk of this particular speciman stretches upward 50 feet or more without a limb? When growing in the open, Burr Oak trees usually have short massive trunks from which huge lower limbs spread horizontally outward. Do you think this tree has had to compete with its neighbors to reach sunlight? If so, at what point in its life? What has happened to its competitors?

STATISTICS

DBH (Diameter at breast height) -- 56"

Height -- 112'

Estimated board feet of lumber -- 4,270

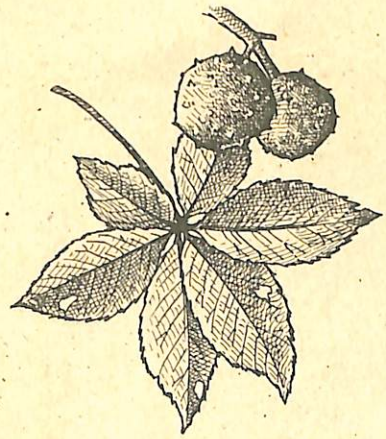


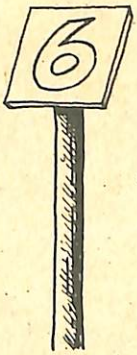

# storm damage

During a thunderstorm in August of 1970, this Bur Oak was struck by a bolt of lightning. Notice how the wound extends down the length of the trunk to the ground, where the lightning was finally grounded.

Although trees continue to grow as long as they are alive, they do not live indefinitely. As a matter of fact, after a certain age of maturity is attained, the growth rate decreases and the tree begins to go "downhill" until it eventually succumbs to disease or the elements. Few of the taller trees in this woods have escaped being struck by lightning at least once. This oak will probably recover. The one at stop 11 was not so fortunate. See if you can find any other trees that have been struck by lightning. Can you think of other natural factors which might damage or destroy trees in this woods?

STATISTICS
DBH -- 52"
Height -- 111'
Estimated board feet -- 3,450

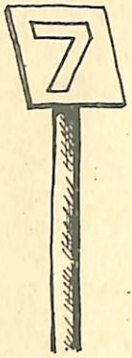





# hetuck

Here is an Ohio Buckeye, our official state tree. It is believed by some people that the name "Buckeye" came from the Indian word "hetuck," meaning the eye of a buck deer, which the nut resembles. The Indians used to grind up buckeye seeds and dump them into small fishing pools. The chemical properties of the buckeye would stun the fish, causing them to float to the surface where they were quickly retrieved by the Indian braves.

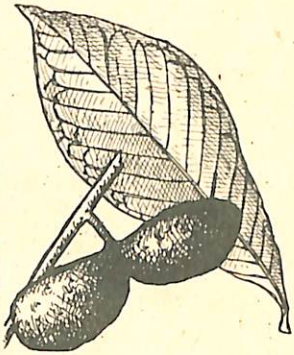
There is a story that one side of a buckeye nut is poisonous while the other is edible, but it is not true. It goes on to say that a squirrel will only eat the edible half. Actually, while the entire buckeye is poisonous to a man, none of it is poisonous to a squirrel. Buckeyes are occasionally found only half eaten, but that is probably because squirrels don't like them as well as other food.

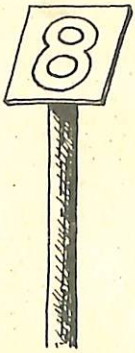


# pawpaw

These small trees are called Pawpaws. They belong to the Custard-Apple family. Notice the very large oblong drooping leaves. In early spring, before the leaves appear, solitary maroon flowers about one inch across come into bloom. While all deciduous hardwood trees produce flowers, most are not as large and conspicuous as those of the Pawpaw. By late summer, short, stubby, greenish-yellow fruits develop. After the first frost, these banana-like fruits ripen and provide a tasty treat for he who gets to them before the raccoons and opossums.

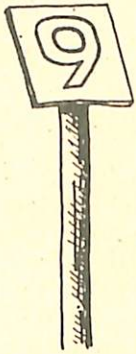
Pawpaw trees thrive in deep shade and on moist but well-drained soil. Few get any larger than these specimens. The inner bark is very fibrous and was used by the Indians for making fish nets. Perhaps long ago an Ottawa Indian brave pulled fish from the nearby Tiffin River using a net made of the inner bark from the ancestors of this same grove of Pawpaws.



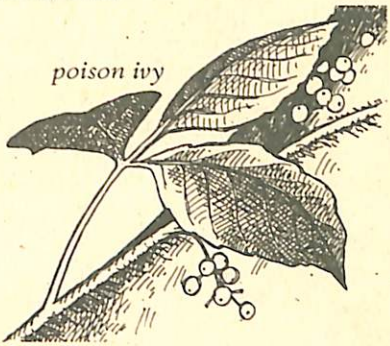


# elder of the woods

This 122-foot "elder" of Goll Woods has proudly stood here for the last 450 to 500 years. If it could only tell us of the centuries gone by--of when the land was natural, free and wild... of how Pottawatamie, Delaware, Ottawa and Wyandotte Indian braves passed this way in search of Elk, Bear, Mountain Lion and Bison which were once so plentiful...of the French Fur trader Chevalier Robert de la Salle who was the first white man ever to explore the valley of the Maumee back in 1679...and of the waves of trappers, soldiers and pioneers who followed. Our Bur Oak has experienced it all, from the howling of wolves and war-whoops of warriors to the laughter and yelling of school children. If only it could tell us.




# look but don't touch



*poison ivy*

At first glance, one might mistake the vine growing up this tree for wild grape. A closer look will reveal that tendrils are lacking and, instead, numerous brown, hairy rootlets are growing from the sides of the main stem. This is Poison Ivy. Contact with any part of it, at any season of the year, may produce a very annoying rash caused by the poison urushiol.

Despite the problems it causes, poison ivy is very beneficial. It encourages most people to stay on the trail, preventing trampling of the delicate plant and animal life of the forest floor and its waxy white seeds provide food for many species of wintering birds, as well as early spring arrivals which might otherwise perish for lack of food.

*virginia creeper*

## eastern wood pewee

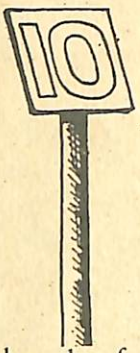
*(Contopus virens)*

You are more apt to hear than see this inconspicuous little flycatcher. His olive-green feathers blend well with the forest canopy, making it very difficult to get a glimpse of him. Occasionally he can be seen in a clearing darting after passing insects from a favorite perch. There is no mistaking his sweet plantive Pee-a-wee call.

## virginia white-tailed deer

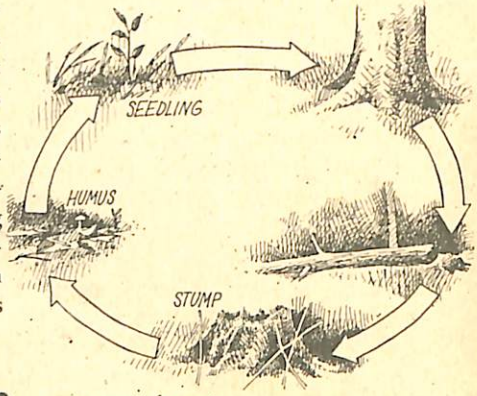
*(Odocoileus virginianus)*

Deer usually spend the day in hiding and rarely move about until evening, when they come out to feed and drink. They are also active early in the morning. It is during these active periods when you might be fortunate enough to get a fleeting glimpse of one. Watch closely for their tracks, which occasionally may be seen along this trail.



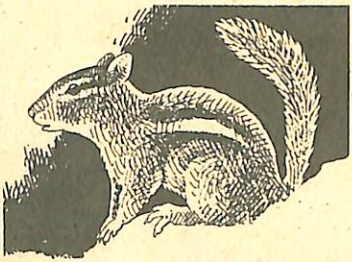

# recycling

One of the greatest environmental problems facing man today is solid waste disposal. Each year, Americans on the average, dispose of 7 million junk cars, 100 million tires, 20 million tons of paper, 28 billion bottles and 48 billion cans at a cost of $2.8 billion for garbage collections. In nature, nothing is wasted. This stump, for example, is not going to waste. It is slowly being decomposed by a variety of plants and animals. The nutrients it has taken from the forest floor are being returned as fertile humus so that they can be used over again. Each year approximately two tons of limbs, twigs, leaves and seeds fall on an average acre of forest floor. You can easily imagine how this would quickly build up, just as a man's wastes build up, if it weren't for the various fungi, bacteria, and other microscopic plant and animal life decomposing and recycling this litter. Are animals recycled into nature? How might man learn a lesson from nature and recycle his by-product wastes?



## raccoon *(Procyon lotor)*

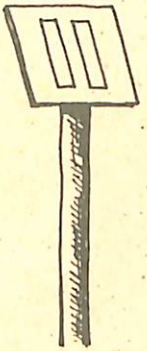
One of the more common residents of this woodlot is the Raccoon. Watch for its tracks in the mud. Raccoons like to prowl around the woodland ponds in search of crayfish and amphibians. Occasionally they can even be seen sunning themselves on large limbs high in den trees. The name "Raccoon" comes from the Algonquian Indian name Arakum meaning "he scratches with his hands." Anyone who has ever watched a Raccoon seeking food can certainly appreciate this description.



## eastern chipmunk

*(Tamias striatus)*

If you see no other mammal along this trail you will probably see at least one Chipmunk. The name "Chipmunk" comes from Chitmunk, an Algonquian Indian name for this little ground squirrel, that refers to its chipping call. Of its several calls, this loud, bird-like chip is most frequently heard. Often a Chipmunk will sing continuously for several minutes at a rate of 130 "chips" per minute. Listen and see if you can identify the call as you hike through these woods.

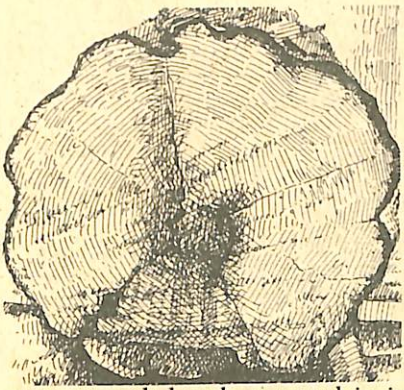


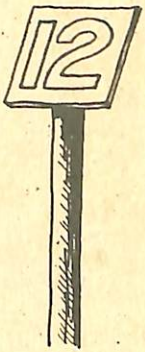

# white ash

*(Fraxinum Americana)*

Ash trees are related to the olive trees of southern Europe and the near East. Of the 18 species of ash trees native to North America, the White Ash is the tallest and most valuable. It is one of the leading commercial hardwoods in the lumber industry. It is used for baseball bats and other wooden sporting goods, tool handles and furniture. "Fraxinus" is an ancient Latin name for ash. It is derived from a Greek word meaning "to separate", referring to the ease with which this wood splits. Notice the diamond-shaped pattern of the deeply furrowed, ashy-gray bark. Black Ash, Green Ash, and Blue Ash are all found growing here.

STATISTICS
DBH - 32"
Height -- 104"
Estimated board feet of lumber -- 1,150






# time capsule

A loud splintering thud on a cold winter's day in 1968 echoed the end of this mighty Bur Oak's reign in Goll Woods. A year earlier it had finally succumbed to old age and disease. For hundreds of years, as this tree grew, events of its past were recorded and preserved in its annual growth rings. Examine the growth rings in this cross section of trunk. The appearance of alternate light and dark bands is caused by differences in the cells produced during different periods of growth. When growth is rapid, usually during spring, the cells are larger in diameter and have thinner walls than when growth is slow, as in summer. Therefore, the thick-walled cells developed during summer are dark whereas the area of thin-walled cells produced during spring growth appears lighter. The width of these growth rings is affected by environmental factors. In years of extreme drought, the annual rings may be so narrow they scarcely can be distinguished. During abnormally wet years, they are extremely wide. A young tree forced to grow in the shade of its neighbors grows very slowly, but when it is released by the removal of such competition, the new growth rings clearly reveal the effect of the improved conditions. Disease, attacks by insects and old age also contrib-

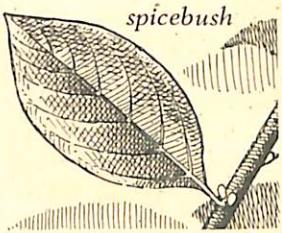
ute to narrow growth rings. Can you think of any other factors which might affect growth? Did this tree grow most in its youth, middle age, or maturity? Count the rings to see approximately how long ago the acorn which gave rise to this tree sprouted. What was the tree's greatest increase in diameter in one year? Its least?

## red fox *(Vulpes fulva)*

If you hike here during the winter months you will see many small, dog-like tracks following this trail, as well as cutting back and forth across it. Unlike the staggered tracks of a dog, these tracks will be in a straight line. They were left by a Red Fox. Just like deer, foxes usually spend the day in hiding and do not move about until evening or early morning. Although they will occasionally kill a chicken or small game animal, foxes are extremely beneficial in controlling small mammal populations. Mice, chipmunks, insects and road killed animals make up the bulk of their diets.

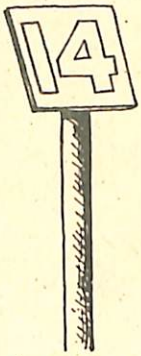
## swamp forest

*spicebush*

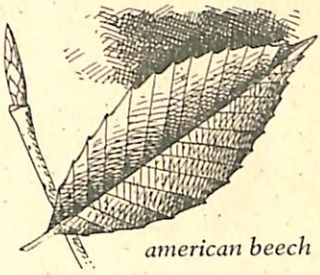


Perhaps you have noticed the change in vegetation since we left the mesophytic forest area at Post 2. We are now in a small swamp forest area characteristic of the Black Swamp. Here, where the impermeable lucustrine clays hold water at the surface most of the year, the mesophytic trees would drown. Once American Elms, Black Ash and Maples (Red and Silver) were the dominant trees. More recently, the Elms have died off from Dutch Elm disease and have been cut. The swamp is also slightly better drained than in past years. In spite of these environmental alterations, the swamp forest association prevails. Black Ash, Red Maples, and Silver Maples still dominate. Swamp White Oak also occurs here. Ecologists call this plant association the Elm-Ash-Soft Maple community. As these trees build up the soil with their litter over hundreds of years, and as sufficient drainage is achieved, White Ash, Shellbark Hickory, and Bur Oak will become established here. The shrub understory is made up almost entirely of the moisture-and shade-loving Spicebush and Pawpaw.

*baltimore oriole*




# beech-maple association



*american beech*

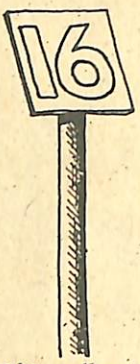
How has the forest association changed here? What environmental factors determine plant distribution in this plant community? At first appearance, the old lake bed in northwestern Ohio appears to be level. Closer examination and measurements reveal an abundance of low ridges and sand knolls with gentle slopes of but a few feet per mile. These slight differences in topography and the consequent difference in surface drainage are reflected in the distribution of tree species. This section of trail follows a remnant of beach ridge created by Lake Whittlesey about 11,000 years ago. (See page 32.) Although only a few feet in height, the sand knoll affords sufficient surface drainage for the establishment of a Beech-Sugar Maple forest association. Notice how all these larger trees are either American Beech or Sugar Maple. Since seedling Beech and Sugar Maples can survive under the dense shade of the parent trees, whereas most other tree seedings can not, this area of woodlot has reached a stable or climax stage where the Beech-Maple forest association will not be replaced by other forest associations. In time, perhaps, a few hundred to a thousand years, as Goll Woods continues to become better drained, the Beech-Maple association will probably replace the other major tree associations found here. This transition from swamp forest to Beech-Maple Climax forest is already well underway.

*red squirrel*

# to serve the living

To most, this very large cottonwood probably seems of little value. Many of its major upper limbs have been wind damaged or injured by lightning and are dead. Actually, it is one of the most important trees in this woods for it is a den tree. Such trees are extremely important to a well-balanced forest community. They provide shelter for animals such as squirrels, birds, mice, insects and even bats. This particular cottonwood is home for a family of Red Squirrels. How many animals can you think of that might live in the hollows of den trees? How many nocturnal animals have you listed?

The Red Squirrel is usually not hunted because of his small size. On the other hand, the much larger Fox Squirrel is eagerly sought after. For years and years, Goll Woods has been known as the best Fox Squirrel hunting woods in this county. How would you account for the abundance of Fox Squirrels here?




# ferns a plenty

goldie's

The ferns growing in the wet depression before us are called Sensitive Ferns. While only six species of ferns have thus far been recorded occuring in this woodlot, they are abundant. Ferns have an ancestry dating back 400 million years to the Paleozic Era. They were among the first simple land plants. Fern fossils found in Ohio tell us that during the Carboniferous Period, 345 to 280 million years ago, ferns were tree-like in height with wide spreading leaves emerging from a modified trunk.

rattlesnake

Look carefully and you will see that the conspicious part of the fern is the leaf itself. The stem lies horizontally on the ground and is often concealed by dead leaves.

See how many ferns along this trail you can identify. About 50 feet up the trail and to the right is a fine patch of Christmas Ferns next to a small clump of Maidenhair Ferns.

christmas

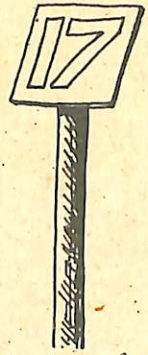
maidenhair

glade

lady

fragile

spinulose wood

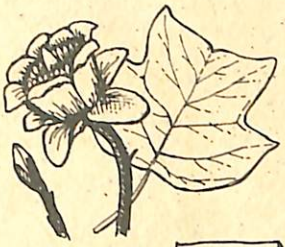


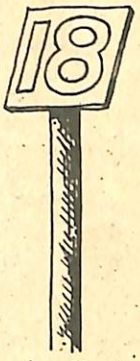

# living fossil

The Tuliptree or yellow poplar, a member of the Magnolia family, is a very ancient tree. Geologists have found fossil leaves of Tuliptrees in the rocks of Europe and Greenland dating back some 100 million years. Today, there is only one species of Tuliptree on the North American Continent. The only other species in the entire world is found in China. Before the last Ice Age, a few species of Tuliptrees were found in Europe. As the glacier advanced southward, many species of trees, including Tuliptrees, were wiped out because of the great east and west mountain barriers and the Mediterranean Sea. Since North American's major mountain ranges run north and south, trees were able to slowly migrate southward in advance of the glaciers and then become re-established in the northern latitudes as the glaciers finally melted away.

sensitive

Many pioneer cabins in northwestern Ohio were constructed of yellow poplar lumber. Young Tulip-trees have a habit of self-pruning which results in the tall, straight, limb-free trunks so characteristic of this species. The early settlers also used the bitter inner bark, especially that of the roots, in making home remedies for cholera, croup, colds, coughs and jaundice--as well as to stimulate the heart.



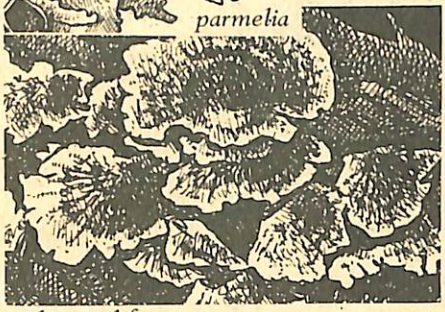



## lichens *(li'kens)*

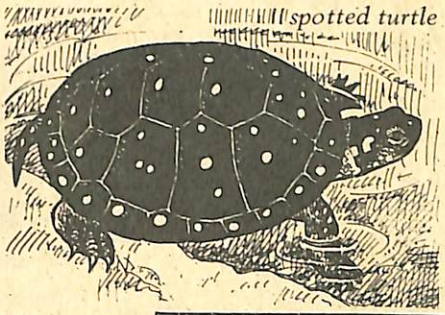
If you closely examine the trunk of this oak, you will see greenish-white patches of Parmelia lichen. Lichens are remarkable plants, composed of both threads of fungus and green algae cells living harmoniously in one structure. The algae cells, by photosynthesis, provide food for themselves and the fungus cells. The fungus cells, through absorption and storage, supply the water. Thus, it is possible for these plants to grow even on bare rock.

There are several hundred species of lichens. Some are used in making dyes for Harris Tweeds and for litmus paper. Both the Hummingbird and the Eastern Wood Pewee use the Parmelia lichen for lining the outside of their nests, as well as for attaching their nests to limbs.

*parmelia*

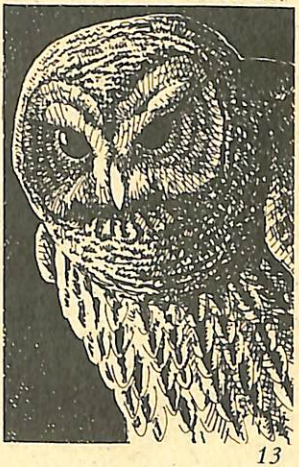


*turkey-tail fungus*

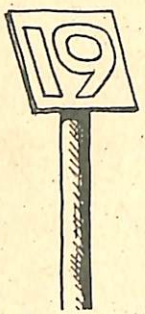


*spotted turtle*

## barred owl *(Strix varia)*



Goll Woods is home for at least one family of Barred Owls. Occasionally this owl can be heard calling during the day--especially if the day is overcast. The most frequent call is a series of eight hoots that sound as if this large bird is saying "Who cooks for you, who cooks for you-all". This owl also produces a series of chuckles and blood curdling screams, which account for many pioneer tales of screaming panthers following the wagon trains through the deep forests.

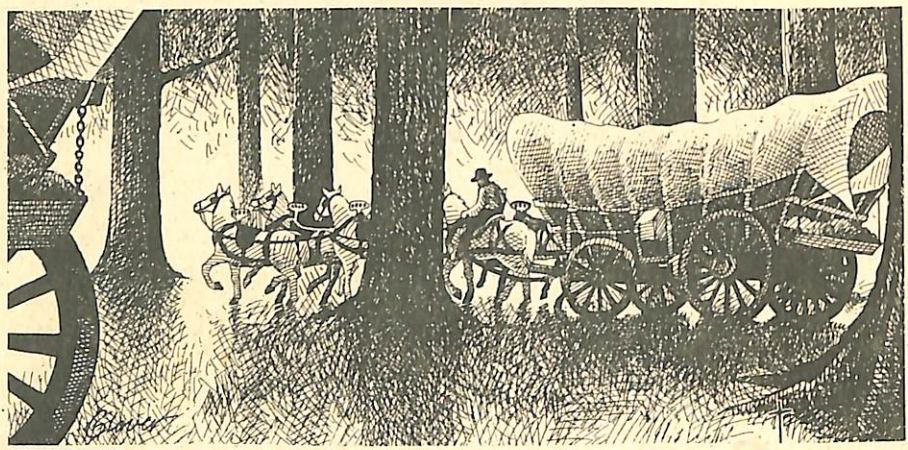


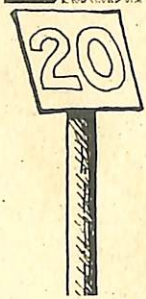

## white oak

This splendid specimen of White Oak is a lumberman's delight, for it contains much valuable lumber. In order to estimate just how much lumber can be obtained from a given tree, the forester must first determine the DBH or diameter at breast height (4½ feet above ground) and the height of the tree in terms of how many 16-foot logs are in the trunk. Once the diameter and height are known, the forester can calculate the board-foot volume by using a special volume table. A board foot is equal to a piece of lumber 1 inch thick, 12 inches wide and 12 inches long.

This White Oak is 43 inches DBH and 114 feet tall, and contains an estimated 2,080 board feet of lumber. Two such trees would provide enough lumber to build a small house.

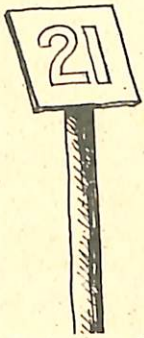
Unfortunately, many fine specimens as this were cut and wastefully burned in giant heaps by the early settlers who wanted only to clear the forests so they could plant crops. How many things do we wastefully destroy today that we might find invaluable in the future?





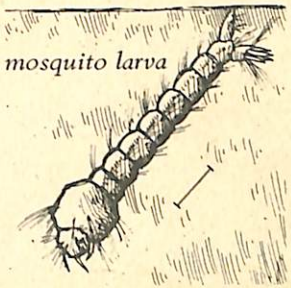

## oak openings

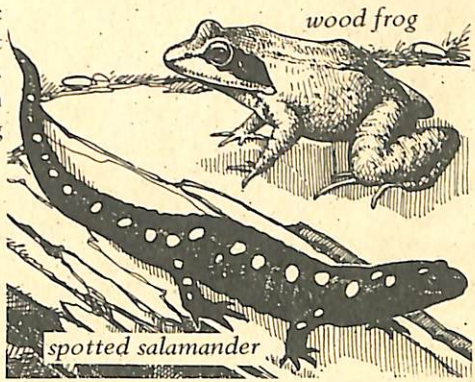
If you can visualize this section of woodlot without any of the small understory trees but with these few, very large specimens of White and Bur Oaks, you will get a pretty good idea of how parts of this area of Ohio appeared to the first settlers. Each year the Indians burned over the land to facilitate their hunting by keeping down the brush and small timber growth. When this land was first occupied by the settlers, the only trees on some tracts were a few varieties of Oaks, and these so sparsely set that, as a rule, their tops did not meet, and a wagon could be drawn in any direction between them. Hence the name "Oak Openings" was given to those tracts of land. With the disappearance of the Indians and the discontinuance of the annual fires set by them, a dense growth of trees spring up in many places. In the sandy barrens to the east, only a scrubby undergrowth developed, while in other places patches of wet prairie were invaded by Aspen and Poplar.

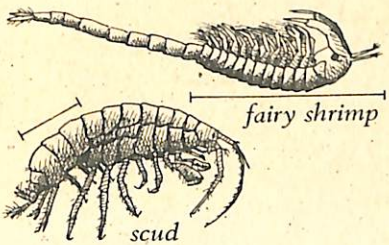



# frog pond

Throughout most of the year, this small depression is filled with water. While it may seem to serve only as a mosquito breeding place that should be drained, actually, small pools such as this one not only play an extremely important ecological role in the forest community but also can provide great fascination for the intent observer. While it is true that some mosquito larvae live here, so do a host of other aquatic insects. Many of these insects feed upon the mosquito wigglers, and in turn may be fed upon by other forms of wildlife. In early spring, salamanders, small woodland frogs and toads seek out these pools in which to breed and lay their eggs. Mammals such as raccoons, opossoms and skunks seek crayfish, frogs and other sources of food here. As a matter of fact, a very large number of animals depend on these small pools for food. Examine the water carefully, to see how many different forms of animal life you can discover. You would be further surprised by the various microscopic animals you can see by looking at water samples through a microscope. How do swamp forest pools aid in flood control and in maintaining ground water supply?

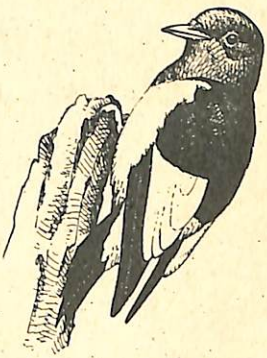



# red-headed woodpecker

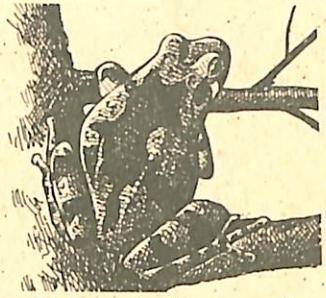
*(Melanerpes erythrocephalus)*



Although uncommon throughout most of its range, the red-headed woodpecker is very plentiful in the vicinity of Goll Woods. It shows a marked preference for open woodlots in which a number of dead trees are still standing. This robin-sized bird is the only entirely red-headed woodpecker found in eastern North America. Immature birds have a dusky-colored head. Watch for the conspicuous large white patches in the rear edge of the wings, which make this bird easy to identify, especially in flight.

# eastern gray treefrog

*(Hyla versicolor)*



Like most treefrogs, this amphibian is capable of changing color. An individual may change from gray-green to light pearl-gray, depending on the background upon which it is resting. Such protective coloration makes it almost impossible to find these frogs during the day. Only their exceptionally loud rattling scream, which is usually given after dark, gives them away. If you should be fortunate enough to find one, notice the white patch on each side of the head just below the eye. Since this patch does not change color with the rest of the Eastern Gray Treefrog's body, it is a good identifying characteristic. Also look for the conspicuous adhesive toe discs and the bright orange-yellow on the underside of the thighs.

# trail's end

Ahead, just a short distance down the trail, is the Parking Lot. We hope that you have enjoyed this walk through the woods and that you will plan to return some day soon.

# check-list

All of these plants occur in Goll Woods. Watch for them as you walk this trail and check off those you have seen and can recognize.

## trees

☐ *alternate-leaf dogwood*

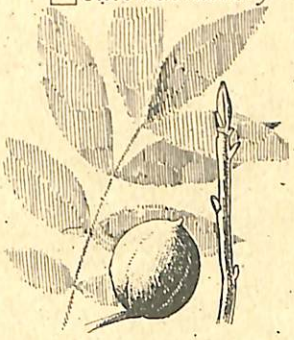
☐ *bigtooth aspen*

☐ *black gum*

*black maple* ☐

☐ *american basswood*

☐ *bitternut hickory*



☐ *black walnut*

☐ *american beech*

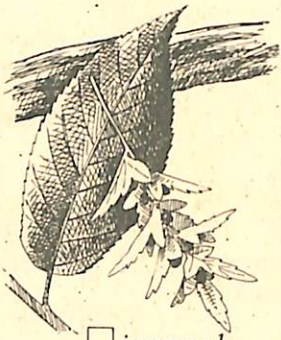
☐ *black ash*

☐ *american elm*

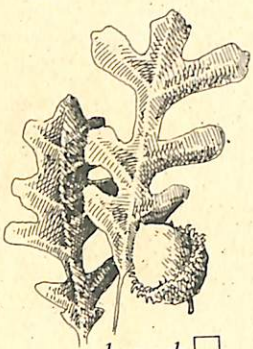
*blue ash* ☐

☐ box elder

☐ flowering dogwood

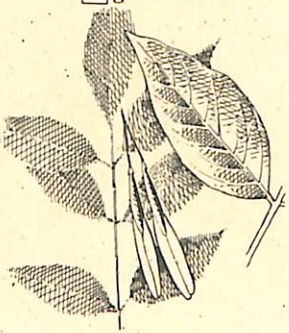


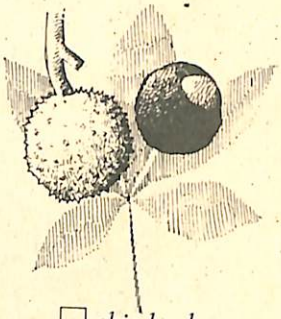
☐ ironwood



bur oak ☐

☐ green ash

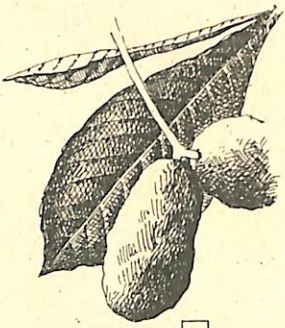




☐ ohio buckeye

chinquapin oak ☐

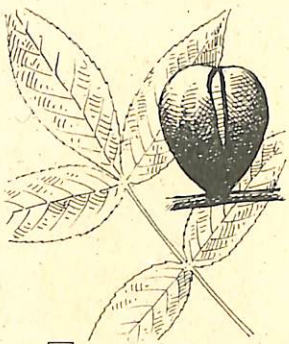
☐ hackberry



pawpaw ☐

☐ cottonwood

☐ hophornbeam



☐ pignut hickory

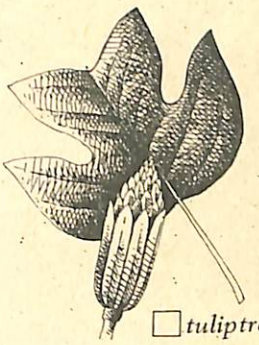
☐ redbud

☐ slippery elm

☐ sycamore

☐ red oak

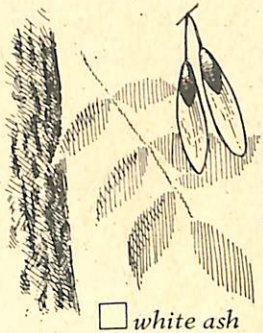
☐ silver maple



☐ tuliptree

☐ shagbark hickory

☐ sugar maple



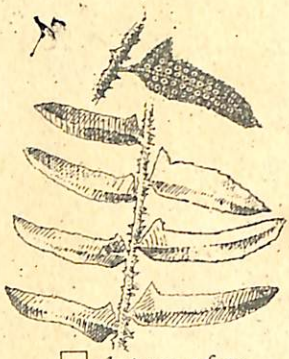
☐ white ash

☐ shellbark hickory

swamp white oak ☐

☐ white oak

# ferns

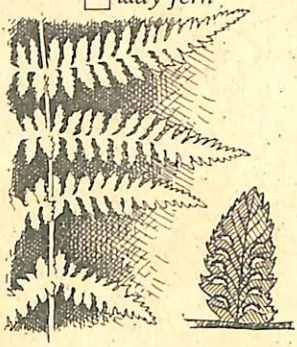


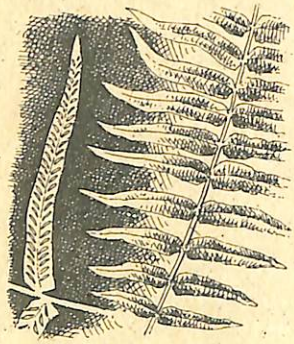
☐ *christmas fern*

☐ *goldie's fern*

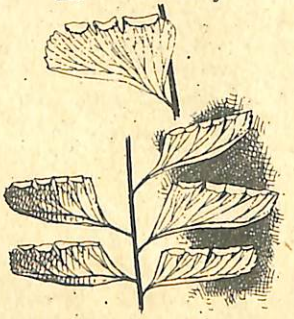
☐ *sensitive fern*

☐ *lady fern*





☐ *maidenhair fern*



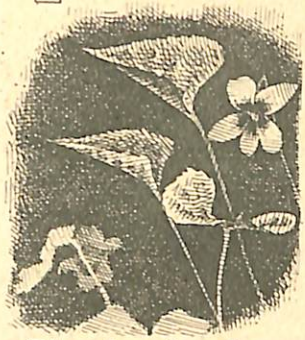
☐ *spinulose woodfern*

# wildflowers

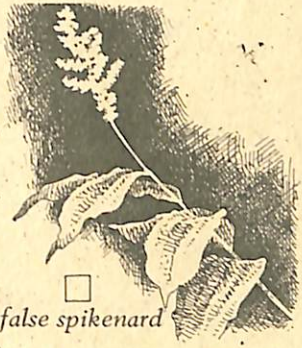
## SPRING AND EARLY SUMMER

☐ *appendaged waterleaf*

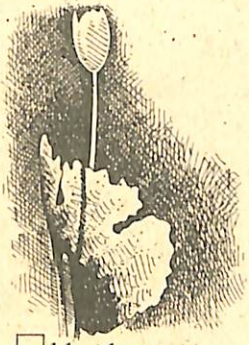
☐ *common blue violet*



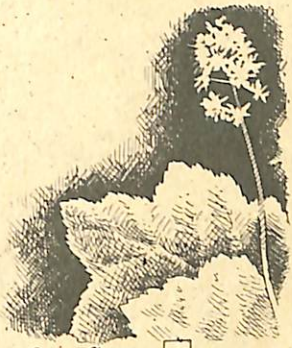
☐ *cut-leaved toothwort*



☐ *false spikenard*

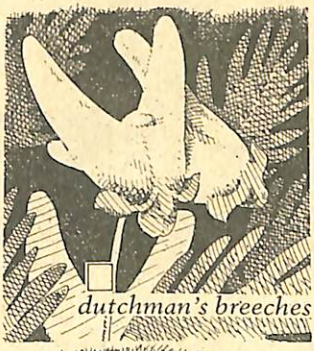


☐ *bloodroot*



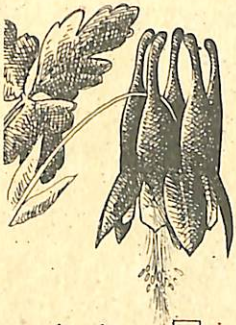
*foamflower* ☐

☐ *canada mayflower*



☐ *dutchman's breeches*

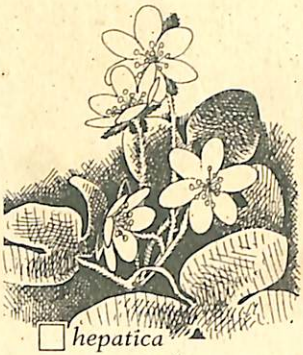
☐ *golden ragwort*



*columbine* ☐

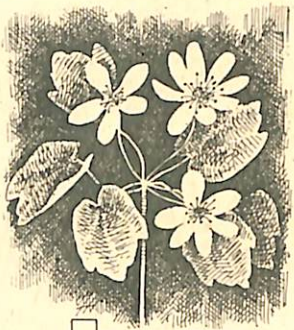
☐ *dwarf ginseng*

☐ *harbinger-of-spring*

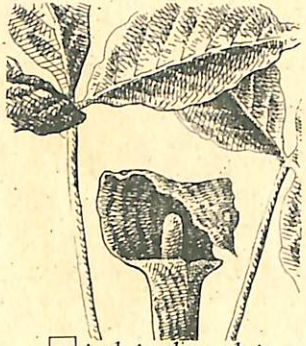


☐ *hepatica*

☐ *mayapple*

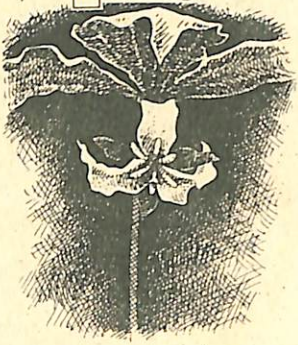


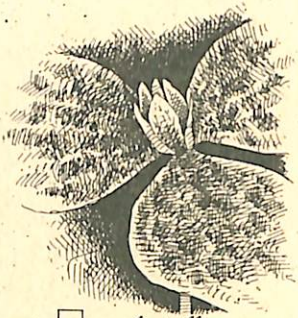
☐ *rue anemone*



☐ *jack-in-the-pulpit*

☐ *nodding trillium*

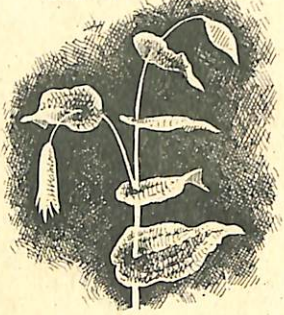


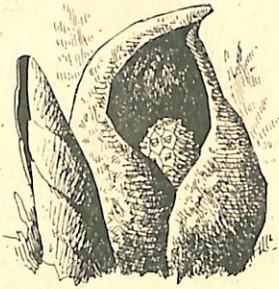


☐ *sessile trillium*

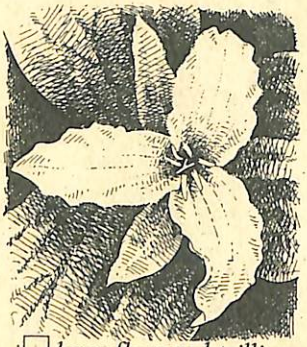
☐ *large-flowered bellwort*

☐ *perfoliate bellwort*

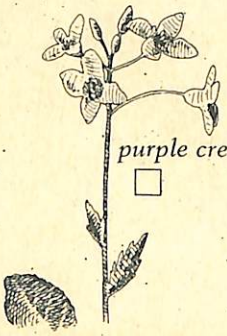




☐ *skunk cabbage*



☐ *large-flowered trillium*



☐ *purple cress*

☐ *smooth yellow violet*

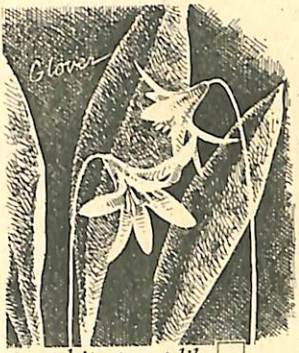
☐ solomon's seal

☐ virginia waterleaf

white baneberry ☐

☐ spring beauty

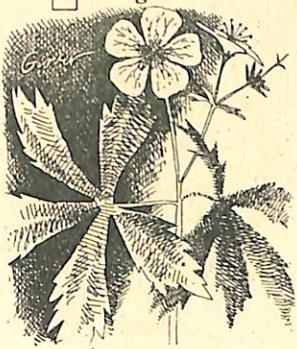
☐ wild blue phlox

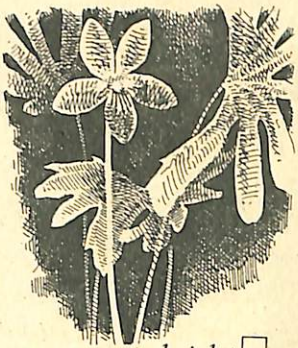



white trout-lily ☐

☐ spring cress

☐ wild geranium



wood violet ☐

☐ swamp buttercup

☐ wild sarsaparilla

☐ yellow trout-lily

# wildflowers

## LATE SUMMER AND AUTUMN

☐ *avens*

☐ *common selfheal*

☐ *blue wood aster*

☐ *bastard toadflax*

☐ *dogbane*

☐ *boneset*

☐ *beggar-ticks*

☐ *horseweed*

*canada thistle* ☐

☐ *black-eyed susan*

*jewelweed* ☐

☐ *jimsonweed*

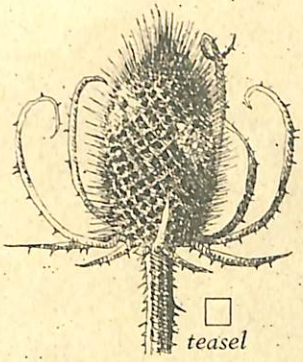
☐ *tall ironweed*

*turtlehead* ☐

☐ *new england aster*

☐ *white heath aster*

☐ *pointed-leaved tick-trefoil*



☐ *teasel*

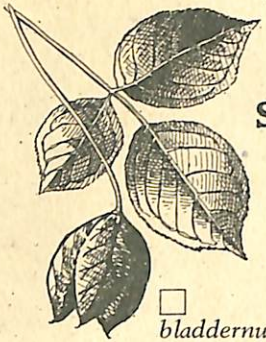
*white snakeroot* ☐

*tickseed sunflower*

☐ *rough sunflower*

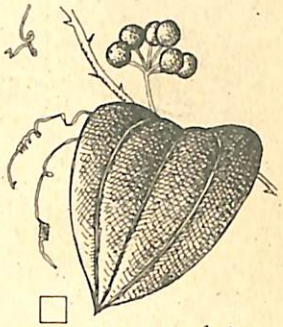
☐ *zigzag goldenrod*

# shrubs and vines



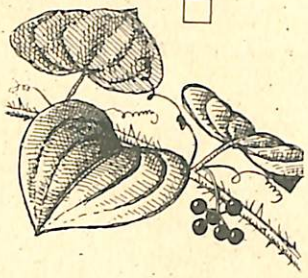
☐ *bladdernut*

*bristly greenbrier* ☐



☐ *common greenbrier*

☐ *blackberry*



*choke cherry* ☐

☐ *dryland blueberry*

☐ *black haw*

*frost grape* ☐

☐ *black raspberry*

*common elder* ☐

*huckleberry* ☐

☐ maple-leaf viburnum

☐ riverbank grape

☐ virginia creeper

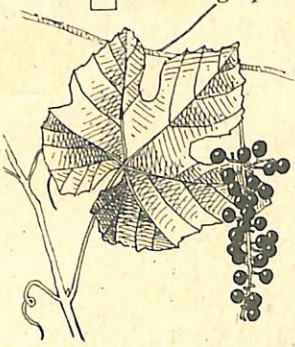
☐ nannyberry

☐ spicebush

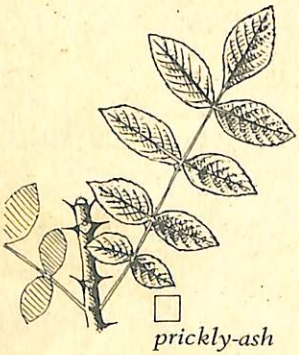
wahoo-bush ☐

☐ poison ivy

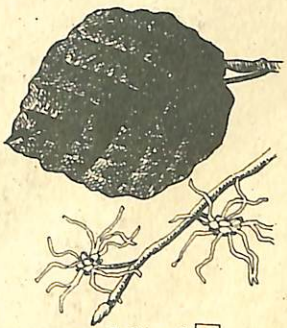
☐ summer grape



☐ wild gooseberry



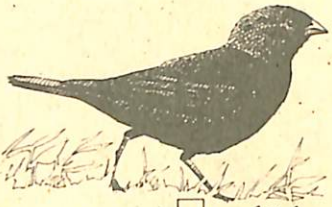
☐ prickly-ash



witch hazel ☐

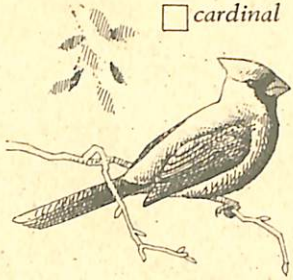
# birds

☐ *baltimore oriole*



☐ *cowbird*

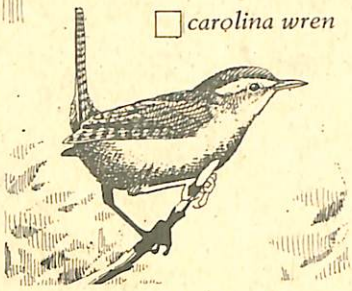
☐ *cardinal*

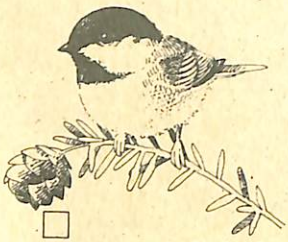


☐ *barred owl*

☐ *crested flycatcher*

☐ *carolina wren*

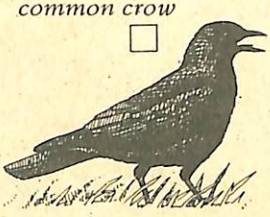




☐ *black-capped chickadee*

☐ *downy woodpecker*

*common crow* ☐

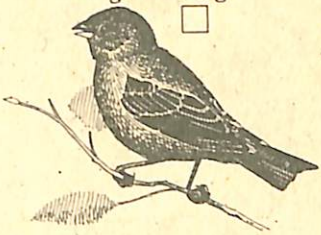


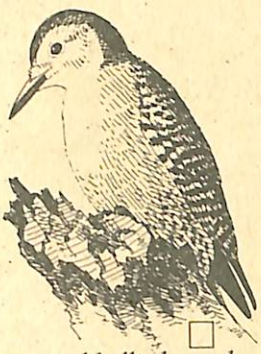
☐ *blue jay*

*eastern phoebe* ☐

☐ *eastern wood pewee*

*indigo bunting* ☐

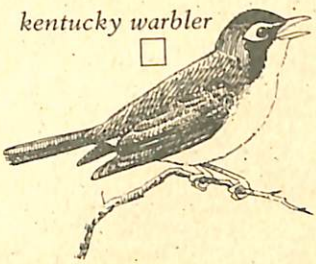


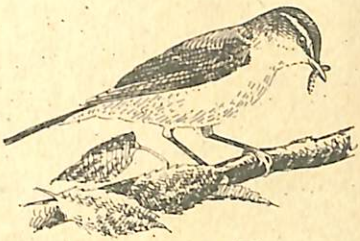


☐ *red-bellied woodpecker*

*flicker* ☐

*kentucky warbler* ☐

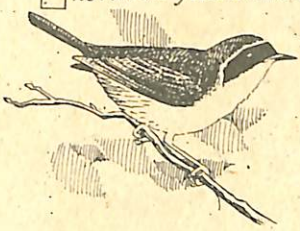


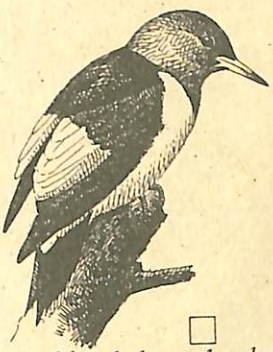


*red-eyed vireo* ☐

☐ *great horned owl*

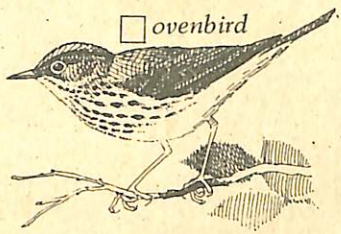
☐ *northern yellowthroat*

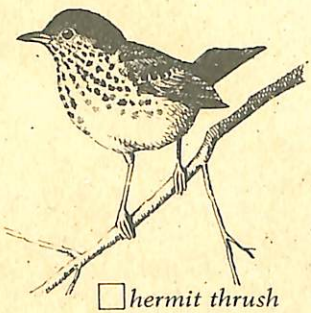




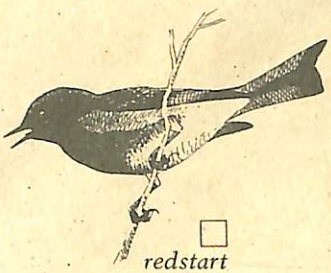
☐ *red-headed woodpecker*

☐ *ovenbird*

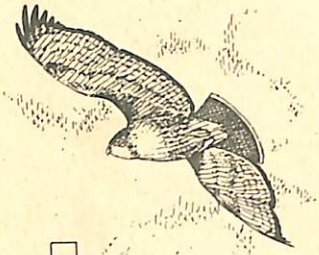




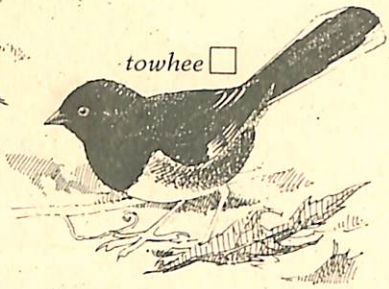
☐ *hermit thrush*



☐ *redstart*

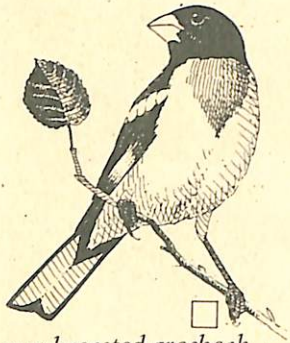


☐ *red-tailed hawk*



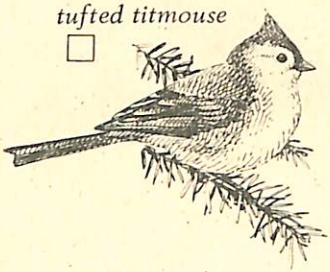
*towhee* ☐

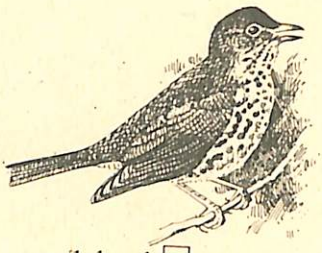
*wood duck* ☐



☐ *rose-breasted grosbeak*

*tufted titmouse* ☐

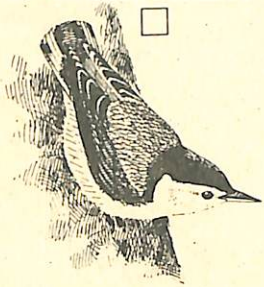




*wood thrush* ☐

☐ *scarlet tanager*

*white-breasted nuthatch* ☐

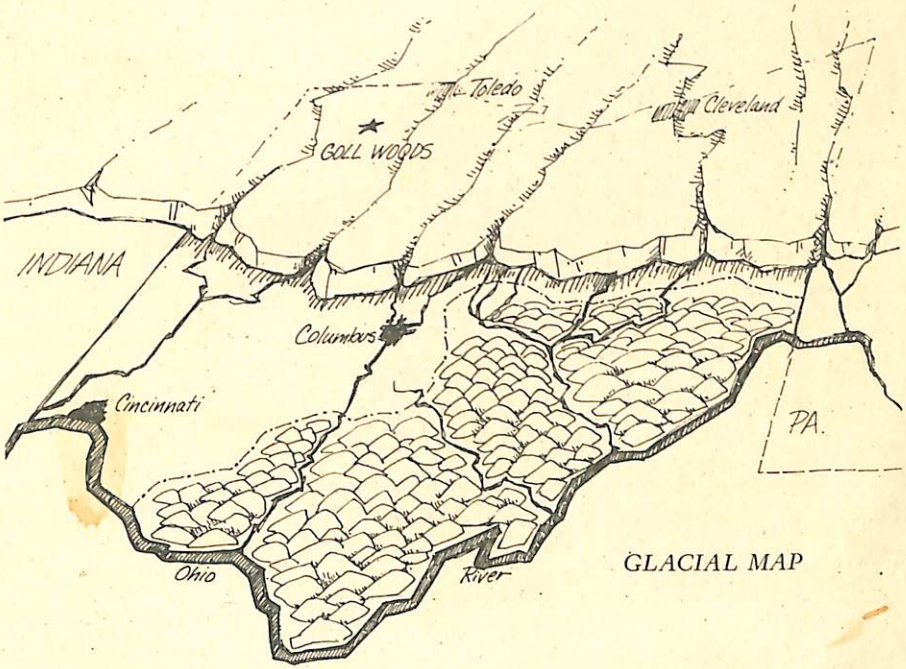


☐ *yellow warbler*

# history of goll woods

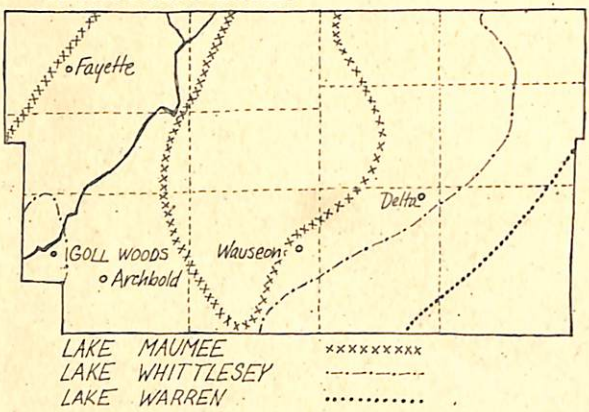
About 25,000 years ago, the Wisconsin Glacier, the most recent of four major continental ice sheets to invade North America, moved down from Labrador into northern Ohio. As the glacier slowly advanced, plants as well as animals were forced to migrate southward.

Finally, about 18,000 years ago, after nearly two-thirds of the state had been covered, the ice sheet began melting faster than it was being built up and began a major retreat northward. As the Lake Erie Basin was gradually uncovered, a large glacial lake was formed across the northwestern corner of Ohio by the glacial melt waters. These waters were held back on the south by the Ohio Divide and to the north by a wall of ice. The ice is estimated to have been about two miles thick in the Lake Erie Basin. With the Niagara outlet still blocked by ice, these lake waters were dammed as much as 200 feet higher than modern Lake Erie.




GLACIAL MAP

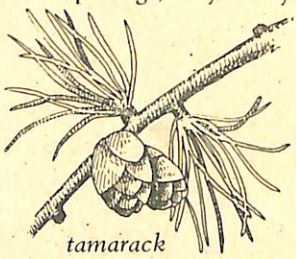
As the Wisconsin Glacier continued to melt northward, new outlets to the west were exposed which lowered the level of the lake, changing the shoreline. Occasionally, the glacier would temporarily readvance, causing the lake level to rise, and again submerge beaches made during a previous stage. Each stage lasted long enough for a well-defined beach ridge to develop at that particular shoreline level. Different lake names have been given to each of these stages, from Lake Maumee I to modern Lake Erie.



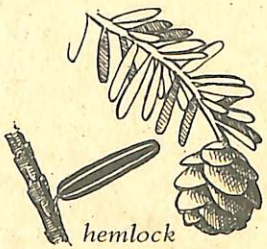

Lake Maumee's beaches may be observed near West Unity, Ohio, while Archbold is located on the Lake Whittlesey beach ridge.

Closely following the retreating margin of the ice were a host of boreal plants like those found in Labrador today. Lichens, mosses and sedges quickly took over the bare, newly-exposed glacial till plain. We know from fossil pollen, recovered from the depths of northern Ohio bogs, that the first forests to reclaim glaciated Ohio were dominated by spruce and fir trees. With these boreal communities were some widely scattered deciduous trees such as Oak, Birch, Hickory, Maple and a few Beech.

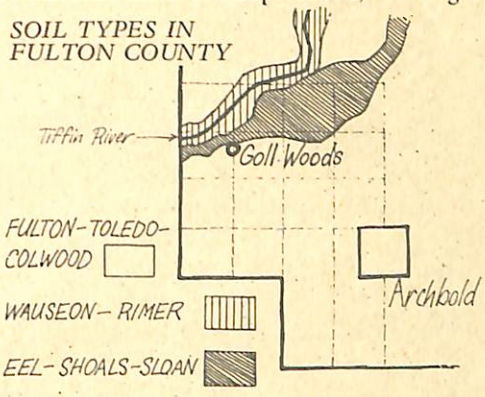
Ever so slowly, over the ensuing thousands of years, the climate changed as did the major forest types. Spruce and Fir forests were gradually replaced by Jack Pine and Oak forests, which, in turn were succeeded by White Pine, Oak and in places, Hemlock. As the postglacial climate continued to grow warmer, modern deciduous forests displaced the White Pine and Hemlock which were unable to compete with these more efficient broad-leaved trees. Some remnant White Pines, Tamarack, and Hemlocks still exist in a few areas of Ohio. Fulton County, as well as most of northwestern Ohio, may still have been submerged during the time of the pine forests, for no native conifers occur here. Had pines ever established a foothold on the sand dunes of the Oak Openings, they surely would be in evidence today. The exposed sections of the poorly drained lake bed may not have been suitable for the establishment of pine or, if they were, perhaps the pines could not successfully compete with the better-suited swamp forest hardwoods which formed a barrier between the sand dunes and the pines in northeastern Ohio.

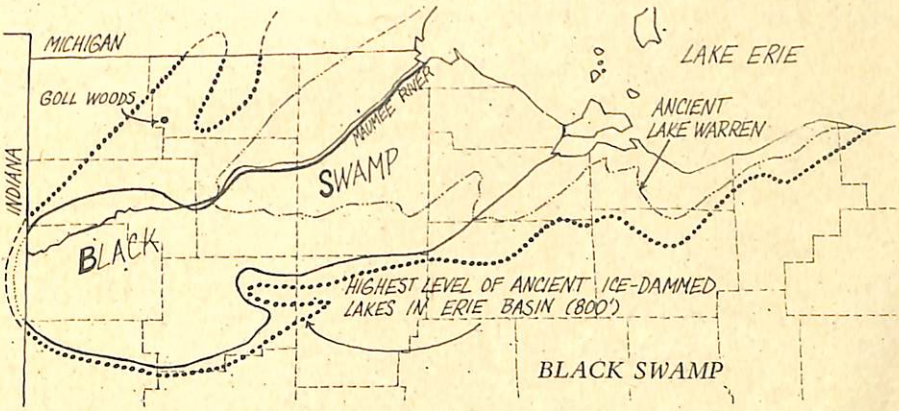

*tamarack*

About 3,000 to 5,000 years ago, during the period when oaks and pines were predominant, the climate became arid enough to enable a peninsula of prairie plants to move eastward into Ohio. Although most of the prairie openings were displaced by the deciduous forest as moisture conditions returned to normal, small, widely scattered remnants of prairie still occur throughout the Black Swamp.


*hemlock*

Once the Niagara outlet was clear of ice, the water level fell rapidly, bringing the present Great Lake System into existence. As the glacial lake level dropped, the beach ridges were left far inland and the extensive, broad lake bottom was exposed. The underlying fine clay sediments, originally deposited at the bottom of the lake, are overlain with more porous deposits. This permits water percolating through the upper layer to become impounded by the impervious clays below, giving rise to swamp conditions. Aquatic plant communities quickly encroached on the shallow but extensive water-filled depressions. Over the years, a considerable amount of organic plant material filled the depressions, forming a rich black muck. Wet prairies and luxuriant swamp forests were then able to develop where the water was previously too deep. The flattest, densest, and most poorly-drained part of this vast swamp forest was called the Black Swamp. The soils of much of the Lake Plain are characteristically black (Fulton-Toledo-Lenawee Series). This color, along with its black reputation, has given rise to the name "Great Black Swamp".




The territory now known as Fulton County was first explored by Chevalier Robert de la Salle, a French fur trader who came to the valley of the Maumee in 1679. He found the region inhabited by Chippewas, Ottawas, Wyandottes, Delawares and Pottawatamies.

In August of 1834, a handful of German pioneer families were the first white people to settle in what is now German township. Other families soon followed. Among them were Peter F. Goll, his wife Catherine, and their young son Peter, Jr., who in June of 1836, emigrated to this country from Dobs, France. The next year, Peter Goll, Sr. blazed his way to the federal land office in Lima, Ohio, where he purchased 80 acres of Goll Woods for $1.25 per acre. In the years that followed, as his farm prospered, Goll continued to buy land until he had acquired more than 600 acres.

The timber growing in German Township at this time was described as "dense throughout the whole area; it was tall and the whole of an extremely vigorous growth. The varieties included Elm in abundance, Basswood, Oak of several varieties, Hickory, Black Walnut, Whitewood (Tuliptree), Butternut, Sugar Maple, and a sprinkling of Beech in some parts, and in the lowest lands Black Ash, and White Ash prevails throughout the township". Timber wolves howled in the forest close to settlements, and cougars roamed at will as did bison, elk, black bear, Canada lynx, and many other animals which have long since vanished.

Goll Woods was in the Goll family for four generations, passing successively from Peter F. Goll, Sr., to Peter Goll, Jr., to George F. Goll, and then to a son and to his daughter, Mrs. Charles Louys. While Peter Goll Sr. and his descendents were farmers, they loved these big trees and carefully guarded the "Big Woods" from a multitude of timber operators.

In 1859, a law providing for extensive ditching was adopted by the county commissioners. As a result of this ditching, the swamp was almost completely drained.

As these highly productive soils were pressed into agricultural use, the original swamp forest vegetation was replaced by cropland. Today the Maumee River Basin boasts one of the largest areas of concentrated drainage works in the world. It has enabled farmers, with only 11% of Ohio's land area, to provide about 25% of the state's agricultural income.

With only Goll Woods remaining, and even it showing the effects of the drastically lowered water table, nature organizations such as Nature Conservancy, the Northwestern Ohio Natural Resource Council, and the Toledo Naturalist Association were instrumental in singling out the 321 acre woods as the last essentially virgin remnant of Black Swamp. With this encouragement, the Ohio Department of Natural Resources purchased the woods in 1966 from Mrs. Louys. On May 29, 1969, Goll Woods was officially dedicated to the people of Ohio as a heritage of outstanding beauty for the enjoyment of future generations.

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Denny, Guy L.
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goll woods nature trail map

text by Guy L. Denny art by James L. Glover

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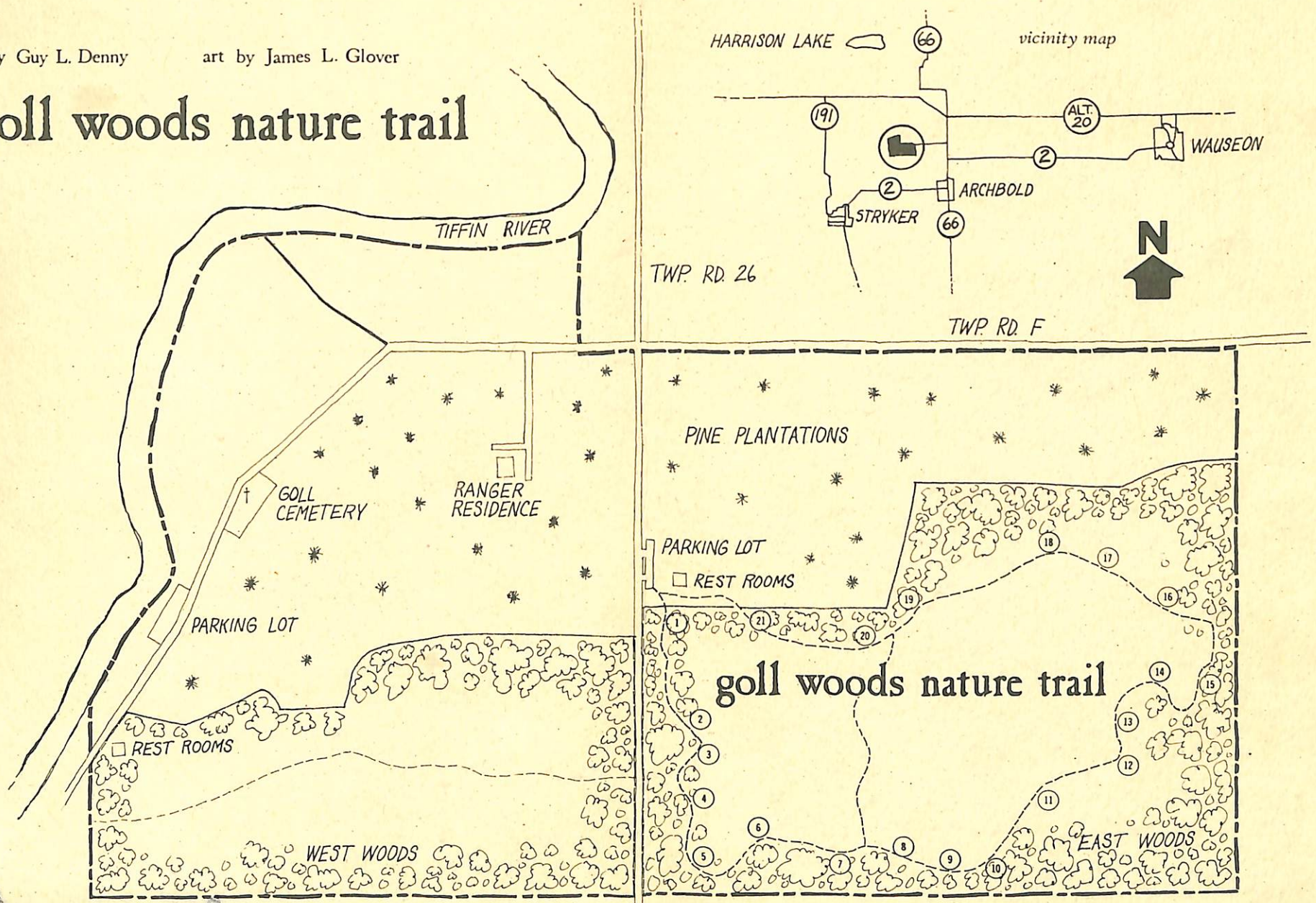


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